PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re U.S. Patent No. 7,836,481	)	Serial No. 09/964,891
	)	
Inventor(s): John S. HENDRICKS	)	Filed: September 28, 2001
	)	
Issue Date: November 16, 2010	)	Attorney Docket No. 007412.00280

For: SET TOP TERMINAL FOR GENERATING AN INTERACTIVE ELECTRONIC PROGRAM GUIDE FOR USE WITH TELEVISION DELIVERY SYSTEM

REQUEST FOR CERTIFICATE OF CORRECTION

U.S. Patent and Trademark Office
Customer Service Window
Randolph Building, Mail Stop: Certificate of Correction Branch
401 Dulany Street
Alexandria, VA 22314

Sir:

Pursuant to 35 U.S.C. § 254 and 37 C.F.R. § 1.323, Applicant requests the issuance of a Certificate of Correction in the above-identified patent. One (1) copy of PTO Form 1050 are appended. The complete Certificate of Correction involves one page.

Some of the mistakes identified in the appended Form occurred through no fault of the Patent and Trademark Office, as disclosed by the records of the application, which matured into this patent. Enclosed for your convenience are the relevant portions of the Amendment filed June 11, 2010, the Information Disclosure Statement considered by the Examiner and returned with the Office Action dated November 30, 2005, and portions of the original Specification. The errors referred to in the Specification, which include duplicative text at page transitions, occurred in good faith without deceptive intent.

Issuance of the Certificate of Correction containing the corrections is earnestly requested. Please charge the requisite fee of $100.00, and any additional fee, which may be associated to our Deposit Account No. 19-0733.

Respectfully submitted,

BANNER & WITCOFF, LTD.

Dated: June 20, 2011

By: /Michael Cuviello/
Michael Cuviello
Registration No. 59,255

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UNITED STATES PATENT AND TRADEMARK OFFICE

CERTIFICATE OF CORRECTION

PATENT NO.: 7,836,481

DATED: November 16, 2010

INVENTOR(S): John S. HENDRICKS

It is certified that errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On the cover page, References Cited section (56), U.S. Patent Documents, Page 2:
Please replace "4,885,632 12/1929 Richards et al"
with --4,885,803 12/1989 Hermann et al.--

In Column 3 of the Specification, Lines 6-7"
Please delete "allowing the by the subscriber using simple alpha-numeric and iconic character access,"

In Column 6 of the Specification, Lines 53-55:
Please delete "After packaging, the packaged television program signal is prepared for satellite transmission 206 and send from the Operations Center 202 to the cable headend 208 via"

In Column 40, Claim 24, Line 34:
Please replace "claim 2" with --claim 20--

Mailing Address of Sender:

Banner & Witcoff, Ltd.
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U.S. PAT. NO 7,836,481

No. of add'l copies
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of (first named inventor):		Atty. Docket No.:	007412.00280
John S. Hendricks			
Serial No.:	09/964,891	Group Art Unit:	2424
Filed:	September 28, 2001	Examiner:	James R. Shelcheda
For:	SET TOP TERMINAL FOR GENERATING AN INTERACTIVE ELECTRONIC PROGRAM GUIDE FOR USE WITH TELEVISION DELIVERY SYSTEM	Confirmation No.:	2109

AMENDMENT

Mail Stop: Amendment
U.S. Patent and Trademark Office
Customer Service Window
Randolph Building
401 Dulany Street
Alexandria, VA 22314

Sir:

In response to the Office Action mailed March 11, 2010, please amend the instant application as follows:

Amendments to the Claims are reflected in the Listing of Claims, which begins on page 2 of this paper.

Remarks/Arguments begin on page 8 of this paper.

Applicant requests any necessary extension of time for the submission of this paper. If any fees are required or if an overpayment is made, the Commissioner is authorized to debit or credit our Deposit Account No. 19-0733, accordingly.

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A terminal comprising:

an interface configured to receive a ~~single~~ signal comprising ~~a composite data stream~~video programs and digital audio programs;

program reception circuitry configured to extract and present ~~audiovisual~~ the video programs received in the ~~composite data stream~~signal;

a hardware upgrade port configured to output the digital audio programs received in the signal to ~~receive~~ upgrade circuitry simultaneously with the presentation of the video programs, wherein the upgrade circuitry is external to the terminal and wherein the outputted digital audio programs are compressed and presentable ~~that provides simultaneous access to audio programs received in the composite data stream, wherein a presentation of the audio programs~~ by the upgrade circuitry ~~is~~ independent from and uncorrelated to the presentation of the ~~audiovisual~~ video programs;

a processor; and

memory storing computer readable instructions, that when executed by the processor, cause the terminal to generate an electronic program guide for controlling display of content on a video screen, the guide comprising a plurality of menus.

2. (Previously Presented) The terminal of claim 1, wherein the plurality of menus of the guide comprises:

an introductory menu that is displayed upon beginning use of the guide;

a home menu;

a plurality of major menus displayed as menu options on the home menu;

a plurality of sub-menus displayed as menu options on the plurality of major menus; and

a plurality of during programming menus enacted after selection of a program, wherein at least one of the plurality of menus comprises program control information received in the ~~composite data stream~~ signal.

13. (Currently Amended) The terminal of claim 9, wherein the guide further comprises a plurality of interactive submenus for use with the interactive features, ~~which~~ wherein the submenus are displayed in response to a selection of the menu options received by the terminal.

14. (Canceled)

15. (Currently Amended) The terminal of claim 13, wherein the presented ~~audiovisual~~ video program and one or more of the submenus are displayed on the video screen at the same time.

16. (Original) The terminal of claim 8, wherein the logo is displayed as an overlay menu.

17-18. (Canceled)

19. (Previously Presented) The terminal of claim 8, wherein the overlay menu is generated by the terminal using data received during a vertical blanking interval.

20. (Previously Presented) The terminal of claim 8, wherein the logo is displayed in a corner of the video screen periodically for a specified duration.

21. (Canceled)

22. (Currently Amended) A terminal comprising:

an interface configured to receive a signal comprising a composite data stream;

program reception circuitry configured to extract and present ~~audiovisual~~ video programs ~~and program control information~~ received in the composite data stream;

a hardware upgrade port configured to output digital audio channels received in the composite data stream ~~interface~~ to upgrade circuitry simultaneous to the presentation of the video programs, wherein the upgrade circuitry is external to the terminal and wherein ~~external to the terminal that provides simultaneous access to audio programs received in the composite data stream, wherein a presentation of the audio programs by~~ the upgrade circuitry tunes,

decompresses, and presents the audio channels is independent from and uncorrelated to the presentation of the ~~audiovisual~~ video programs;

a processor; and

memory storing computer readable instructions, that when executed by the processor, cause the terminal to generate an electronic program guide for controlling display of content on a video screen, the guide comprising a plurality of menus.

23. (Currently Amended) A method comprising:

receiving, at a terminal, a signal comprising a plurality of channels~~composite data stream having a plurality of programs~~;

extracting, at the terminal, a video channel from the signal ~~an audiovisual program from the received composite data stream~~;

outputting, from the terminal, a presentation signal including the video channel for display;

extracting program control information from the ~~received composite data stream~~signal;

~~extracting an~~ outputting, from the terminal to external circuitry, compressed audio channels ~~program from the~~ received in the signal ~~composite data stream; and~~

~~separately presenting the audiovisual program and the audio program~~, wherein the ~~presentation of the~~outputted audio ~~program is~~channels are uncorrelated to the video channel, wherein the upgrade circuitry is external to the terminal, and wherein the external circuitry tunes and decompresses the audio channels remotely and independently from the presentation of the ~~audiovisual program~~ video channel; and

~~generating~~ outputting on the presentation signal a plurality of program menus, wherein at least one of the menus comprises the program control information.

24. (Currently Amended) The method of claim 23, further comprising:

displaying the ~~audiovisual program~~video channel on a video screen; and

displaying during the ~~audiovisual program~~display of the video channel a logo indicating that interactive features are associated with the ~~audiovisual program~~video channel.

25. (Currently Amended) The method of claim 24, further comprising:

receiving from ~~the~~ a user input device a signal associated with the logo; and

displaying, in response to the signal from the input device, an overlay menu of the interactive features.

26. (Canceled)

27. (Previously Presented) The terminal of claim 8, wherein the program control information comprises video, graphics and text.

28-29. (Canceled)

30. (Previously Presented) The terminal of claim 22, wherein the external upgrade circuitry comprises a visual display separate from the video screen.

31. (Previously Presented) The terminal of claim 22, wherein the external upgrade circuitry is configured to receive commands from a separate remote control.

32. (Previously Presented) The terminal of claim 22, wherein the external upgrade circuitry is remotely coupled to the terminal.

33. (New) A system comprising the terminal of claim 22 and the upgrade circuitry.

34. (New) A system comprising the terminal of claim 1 and the upgrade circuitry.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,891	09/28/2001	John S. Hendricks	SEDN/3698D7	2109

56015 7590 11/30/2005

MOSER, PATTERSON & SHERIDAN, LLP/
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SUITE 100
SHREWSBURY, NJ 07702

EXAMINER	
SHELEHEDA, JAMES R	

ART UNIT	PAPER NUMBER
2617	

DATE MAILED: 11/30/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/964,891	HENDRICKS, JOHN S.	
	Examiner	Art Unit	
	James Sheleheda	2617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1 121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 8/15/03, 5/12/03, 5/5/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

FORM PTO 1449	ATTY. DOCKET NO.	APPLICATION NO.	CONFIRMATION NO.
	3698.D7	09/964,891	2109
LIST OF PATENTS AND PUBLICATIONS FOR APPLICANT'S INFORMATION DISCLOSURE STATEMENT (Use several sheets if necessary)	APPLICANT: John S. HENDRICKS		
	FILING DATE: 9/28/2001	GROUP: 2611	

REFERENCE DESIGNATION — U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	PUBLICATION DATE	NAME	Pages, Columns, Lines Where Relevant Passages or Figures Appear
	1A	4,885,803	December 5, 1989	Richards	
	1B	4,695,880	September 22, 1987	Johnson et al.	
	1C	4,829,372	May 9, 1989	McCalley et al.	
	1D	5,235,419	August 10, 1993	Krause	
	1E	4,197,590	April 8, 1980	Sukonick et al.	
	1F	3,978,470	August 31, 1976	McGuire	
	1G	4,528,589	July 9, 1985	Block et al.	
	1H	4,920,432	April 24, 1990	Eggers et al.	
	1I	5,221,962	June 22, 1993	Backus et al.	
	1J	5,438,372	August 1, 1995	Tsumori et al.	
	1K	4,739,510	April 19, 1988	Jeffers et al.	
	1L	5,003,384	March 26, 1991	Durden et al.	

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	PUBLICATION DATE	NAME OF PATENTEE OR APPLICANT	Pages/Columns/Lines Where Relevant Passages/Figures Appear	Check if Translation attached
	1M	WO 94/16527	July 21, 1994	Oberle		☐
	1N	EP 0620689	October 19, 1994	Lambert		☐
	1O	WO 97/22112	June 19, 1997	Huffman et al.		☐
	1P	WO 98/18086	April 30, 1998	Reynolds et al.		☐
	1Q	WO 98/06344	February 26, 1998	Sachs et al.		☐

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, etc.)

1R	SuperVGA Display Products User's Guide, 1st Edition, © Nokia Data AB 1991
1S	Lieferschein Nr. 20139924, Product Description, October 28, 1991
1T	Applied Cryptography, Protocols, Algorithms, And Source Code in C, (pp. 34-44) Schneier, Bruce, Pub. 199 by John Wiley & Sons

EXAMINER	DATE CONSIDERED
	11/21/05

Rev 4/04 (PTO-1449)

Express Mail Label No.

UTILITY PATENT APPLICATION TRANSMITTAL (Large Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No. **3698.00D7**

Total Pages in this Submission **156**

TO THE ASSISTANT COMMISSIONER FOR PATENTS
Box Patent Application
Washington, D.C. 20231

Transmitted herewith for filing under 35 U.S.C. 111(a) and 37 C.F.R. 1.53(b) is a new utility patent application for an invention entitled:

SET TOP TERMINAL FOR GENERATING AN INTERACTIVE ELECTRONIC PROGRAM GUIDE FOR USE WITH TELEVISION DELIVERY SYSTEM

and invented by:

John S. HENDRICKS

If a **CONTINUATION APPLICATION**, *check appropriate box and supply the requisite information:*

☒ **Continuation** ☐ **Divisional** ☐ **Continuation-in-part (CIP)** of prior application No.: **07/991,074**

Which is a:

☐ **Continuation** ☐ **Divisional** ☐ **Continuation-in-part (CIP)** of prior application No.: _____

Which is a:

☐ **Continuation** ☐ **Divisional** ☐ **Continuation-in-part (CIP)** of prior application No.: _____

Enclosed are:

Application Elements

1. ☐ Filing fee as calculated and transmitted as described below
2. ☒ Specification having **65** pages and including the following:
   a. ☒ Descriptive Title of the Invention
   b. ☒ Cross References to Related Applications *(if applicable)*
   c. ☐ Statement Regarding Federally-sponsored Research/Development *(if applicable)*
   d. ☐ Reference to Microfiche Appendix *(if applicable)*
   e. ☒ Background of the Invention
   f. ☒ Brief Summary of the Invention
   g. ☒ Brief Description of the Drawings *(if drawings filed)*
   h. ☒ Detailed Description
   i. ☒ Claim(s) as Classified Below
   j. ☒ Abstract of the Disclosure

UTILITY PATENT APPLICATION TRANSMITTAL
(Large Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
3698.00D7
Total Pages in this Submission
156

Application Elements (Continued)

3. ☒ Drawing(s) *(when necessary as prescribed by 35 USC 113)*
   a. ☒ Formal Number of Sheets 81
   b. ☐ Informal Number of Sheets _____
4. ☒ Oath or Declaration
   a. ☐ Newly executed *(original or copy)* ☐ Unexecuted
   b. ☒ Copy from a prior application (37 CFR 1.63(d)) *(for continuation/divisional application only)*
   c. ☒ With Power of Attorney ☐ Without Power of Attorney
   d. ☐ *DELETION OF INVENTOR(S)*
   Signed statement attached deleting inventor(s) named in the prior application, see 37 C.F.R. 1.63(d)(2) and 1.33(b).
5. ☒ Incorporation By Reference *(usable if Box 4b is checked)*
   The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4b, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6. ☐ Computer Program in Microfiche *(Appendix)*
7. ☐ Nucleotide and/or Amino Acid Sequence Submission *(if applicable, all must be included)*
   a. ☐ Paper Copy
   b. ☐ Computer Readable Copy *(identical to computer copy)*
   c. ☐ Statement Verifying Identical Paper and Computer Readable Copy

Accompanying Application Parts

8. ☐ Assignment Papers *(cover sheet & document(s))*
9. ☐ 37 CFR 3.73(B) Statement *(when there is an assignee)*
10. ☐ English Translation Document *(if applicable)*
11. ☐ Information Disclosure Statement/PTO-1449 ☐ Copies of IDS Citations
12. ☐ Preliminary Amendment
13. ☒ Acknowledgment postcard
14. ☐ Certificate of Mailing
    ☐ First Class ☐ Express Mail *(Specify Label No.):* _____

UTILITY PATENT APPLICATION TRANSMITTAL
(Large Entity)

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Docket No.
3698.00D7
Total Pages in this Submission
156

Fee Calculation and Transmittal

CLAIMS AS FILED

For	#Filed	#Allowed	#Extra		Rate	Fee
Total Claims	25	- 20 =	5	x	$18.00	$90.00
Indep. Claims	4	- 3 =	1	x	$80.00	$80.00
Multiple Dependent Claims (check if applicable) ☐						$0.00
					BASIC FEE	$710.00
OTHER FEE *(specify purpose)*						$0.00
					TOTAL FILING FEE	$880.00

☐ A check in the amount of to cover the filing fee is enclosed.

☐ The Commissioner is hereby authorized to charge and credit Deposit Account No. as described below. A duplicate copy of this sheet is enclosed.

- ☐ Charge the amount of as filing fee.
- ☐ Credit any overpayment.
- ☐ Charge any additional filing fees required under 37 C.F.R. 1.16 and 1.17.
- ☐ Charge the issue fee set in 37 C.F.R. 1.18 at the mailing of the Notice of Allowance, pursuant to 37 C.F.R. 1.311(b).

Signature

Dated: September 29, 2001

Sean S. Wooden, Reg. No. 43,997
DORSEY & WHITNEY LLP
1001 Pennsylvania Avenue, N.W.
Suite 300 South
Washington, D.C. 20004
Telephone (202) 824-8800

cc:

SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

BE IT KNOWN, that I, John S. Hendricks, a citizen of the United States and a resident of Montgomery County, Maryland, have invented certain new and useful improvements in

SET TOP TERMINAL FOR GENERATING AN INTERACTIVE ELECTRONIC PROGRAM GUIDE FOR USE WITH TELEVISION DELIVERY SYSTEM

of which the following is a specification.

REFERENCE TO RELATED APPLICATION

The present application is a continuation of United States patent application Serial No. 07/991,074, filed December 9, 1992, which is incorporated herein by reference as if fully set forth.

BACKGROUND OF THE INVENTION

The invention relates to television entertainment systems for providing television programming to consumer homes. More particularly, the invention relates to cable television packaging, delivery and presentation systems which provide consumers with many television programming options.

Advances in television entertainment have been primarily driven by breakthroughs in technology. In 1939, advances on Vladmir Zworykin's picture tube provided the stimulus for NBC to begin its first regular broadcasts. In 1975, advances in satellite technology provided consumers with increased programming to homes.

Many of these technology breakthroughs have produced inconvenient systems for consumers. One example is the ubiquitous three remote control home, having a separate and unique remote control for the TV, cable box and VCR. More recently, technology has provided cable users in certain parts of the country with 100 channels of programming. This increased program capacity is beyond the ability of many consumers to use effectively. No method of managing the program choices has been provided to consumers..

Consumers are demanding that future advances in television entertainment, particularly programs and program choices, be presented to the consumer in a user friendly manner. Consumer preferences, instead of technological breakthroughs, will drive the television entertainment markct for at least the next 20 years. As computer vendors have experienced a switch from marketing new technology in computer hardware to marketing better useability, interfaces and service, the television entertainment industry will also experience a switch from new technology driving the market to consumer useability driving the market.

Consumers want products incorporating new technology that are useful, and will no longer purchase new technology for the sake of novelty or status. Technological advances in sophisticated hardware are beginning to surpass the capability of the average

consumer to use the new technology. Careful engineering must be done to make entertainment products incorporating new technology useful and desired by consumers.

In order for new television entertainment products to be successful, the products must satisfy consumer demands. TV consumers wish to go from limited viewing choices to a variety of choices, from no control of programming to complete control. Consumers wish to advance from cumbersome and inconvenient television to easy and convenient television and keep costs down. Consumers do not wish to pay for one hundred channels when due to lack of programming information, they seldom, if ever, watch programming on many of these channels.

The concepts of interactive television, high definition television and 300 channel cable systems in consumer homes will not sell if they are not packaged, delivered and presented in a useable fashion to consumers. The problem is that TV programming is not being managed, packaged, delivered, and presented to consumers in a user friendly manner.

Consumers are already being bombarded with programming options, numerous "free" cable channels, subscription cable channels and pay-per-view choices. Any further increase in TV entertainment choices, without a user friendly presentation and approach, will likely bewilder viewers with a mind-numbing array of choices.

The TV industry has traditionally marketed and sold its programs to consumers in bulk, such as continuous feed broadcast and long-term subscriptions to movie channels. The TV industry is unable to sell its programming in large quantities on a unit per unit basis, such as the ordering of one program. Consumers prefer a unit sales approach because it keeps costs down and allows the consumer to be more selective in their viewing.

Additionally, viewership fragmentation, which has already begun, will increase. Programming not presented in a user friendly manner will suffer with a decrease in viewership and revenue.

What is needed is an economical system which can gather television programming in a variety of formats, package the programs, deliver the programs, and present the programs through a user friendly interface which allows the consumer to easily select from among the many program choices. The system must be capable of

handling hundreds of programs in different formats. be expandable for future types of programming, include a method for billing consumers, and be inexpensive. The present invention is addressed to fulfill these needs.

SUMMARY OF INVENTION

A set top terminal is disclosed for use with a television delivery system. The terminal receives a television signal and extracts from the signal individual programs for display on a user's television associated with the terminal. The terminal receives a selection of a program or interactive feature from an interactive electronic program guide displayed on the television. An interactive electronic program guide is disclosed for use with a television delivery system. The guide includes a plurality of interconnected menus having display information. The guide also includes a cursor controlled by the user input device for sequencing through the menus and selecting a menu item. The menus include an introductory menu displayed when the guide is started, a main menu that allows access to program submenus and interactive submenus, and during program menus. The during program menus include both overlay menus that are displayed during a program and hidden menus that are not displayed. The interactive features of the guide include a logo displayed during a program indicating that interactive features are available for the program. Upon user selection, a menu of the interactive features is displayed during the program as an overlay window. Interactive features include, for example, additional information related to the program, quizzes, facts, etc. Upon selection of an interactive feature, the feature is displayed in a menu during the program.

An expanded cable television program delivery system dramatically increases programming capacity using compressed transmission of television program signals. Developments in digital bandwidth compression technology now allow much greater throughput of television program signals over existing or slightly modified transmission media. The program delivery system provides subscribers with a user friendly interface to operate and exploit a six-fold or more increase in current program delivery capability.

Subscribers will be able to access the expanded program package and view selected programs through a menu-driven access scheme that allows each subscriber to select individual programs by sequencing a series of menus. The menus are sequenced by the subscriber using simple alpha-numeric and iconic character access, allowing the

by the subscriber using simple alpha-numeric and iconic character access, allowing the subscriber to access desired programs by simply pressing a single button rather than recalling from memory and pressing the actual two or more digit numeric number assigned to a selection. Thus, with the press of single buttons, the subscriber can advance from one menu to the next. In this fashion, the subscriber can sequence the menus and select a program from any given menu. The programs are grouped by category so that similar program offerings are found on the same menu.

System Description

1. Major System Components

In its most basic form, the system uses a program delivery system in conjunction with a conventional cable television system. The program delivery system contemplates (i) at least one operations center, where program packaging and control information are received and then assembled in the form of digital data, and (ii) a digital compression system, where the digital data is compressed, combined/multiplexed, encoded, and mapped into digital signals for satellite transmission (i.e., modulated, upconverted and amplified). The program delivery system transports the digital signals to the concatenated cable television system where the signals are received at the cable headend. Within the cable headend, the received signals may be decoded, demultiplexed, managed by a local central distribution and switching mechanism and then transmitted to subscriber homes via the cable system.

The delivery system employs an in-home decompression capability employing a decompressor housed within a set-top terminal in each subscriber's home. The decompressor remains transparent from the subscriber's point of view and allows any of the compressed signals to be demultiplexed and individually extracted from the composite data stream and then individually decompressed upon selection of a corresponding program by the subscriber. Within the set-top terminal, video signals are converted into analog signals. Control signals are extracted, decompressed and either executed immediately or placed in local storage in a ROM. The program control signals correspond to specific television programs with menu program options that each subscriber may access through a subscriber interface. The subscriber interface is a

Figures 17d-17j are drawings of submenus for interactive television services, Level A.

Figures 18a-18l are drawings of interactive services, Level B, particularly related to on-screen airline reservations.

Figures 19a-19e are drawings of menus for digital audio services.

Figures 20-28 illustrate the menus presented in the preceding Figures.

Figure 29a is a drawing of a hit movie escape during program menu.

Figure 29b is a drawing of a hit movie during program hidden menu.

Figure 29c is a drawing of a hit movie re-entry submenu.

Figures 30a-30b are drawings of major menus.

Figures 31a-31b are drawings of submenus for the major menus shown in Figures 30a-30b.

Figures 32a-32b and Figures 33a-33c are drawings showing examples of submenus for the menus shown in Figures 31a-31b.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Figure 1 shows an overview of the cable television menu driven program delivery system 200. The Operations Center 202 is shown receiving external programming signals which correspond to particular programming categories that are available for a subscriber's viewing. These external signals may be in analog or digital form and may be received via landline, microwave transmission, or satellite. Some of these external signals may be transmitted from the program source to the Operations Center 202 in compressed digital format or other nonstandard digital formats. These external signals are received and packaged along with programming that is stored at the Operations Center 202 (not shown here).

Examples of external program sources 204 shown in Figure 1 are: Sporting events, children's programs, documentaries, high definition TV sources, specialty channels, interactive services, weather, news, and other nonfiction or entertainment. Any source that can provide either audio or video or both may be utilized to provide programming to the Operations Center 202.

After packaging, the packaged television program signal is prepared for satellite transmission 206 and sent from the Operations Center 202 to the cable headend 208 via

After packaging, the packaged television program signal is prepared for satellite transmission 206 and sent from the Operations Center 202 to the cable headend 208 via satellite transmission 206. Depending on the specific embodiment, the television program signal may need to be compressed, combined/multiplexed, encoded, mapped, modulated, upconverted and amplified. This system, which is intended to be compatible with existing C and Ku Band satellite transmission 206 technologies, accepts video, audio and data signals ranging in signal quality, and input from a number of sources.

Upon receipt of the programming signal at the cable headend 208, the signal is again treated if necessary and sent into a concatenated cable system to the subscriber's home. The signal reaches the subscribers home in a compressed format and must be decompressed prior to viewing. Included in the delivered program signal is information which enables equipment at the subscriber's home to display menus for choosing particular programs. Depending on the particular embodiment, the television program signal may arrive at the subscriber's home via one or more coaxial cables, fiber cables, twisted pairs, cellular telephone connections, or personal communications network (PCN) hookups.

This connection between the subscriber's home and the cable headend 208 allows for two-way communications. Utilizing this two-way communications, the cable headend 208 receives information about a subscriber's account, billing, and programs viewed. Also, the cable headend 208 is capable of sending computer data or computer software information to the subscriber's home.

As shown in Figure 1, an analog cable TV system 210 can continue to exist alongside and within the digitally compressed system of the present invention. The digital transmissions do not effect the analog system. In fact, the analog cable signal may be transmitted simultaneously on the same cable as the digital signal. The cable headends may continue to supply subscribers with local channels in an analog signal format.

Figure 2 shows a more detailed overview of the operation of the present invention. The Operations Center 202 shown performs program packaging and delivery control. In the preferred embodiment, the packaged program signal will be treated at a master control uplink site 211 prior to being transmitted to the satellite 206. Various